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**TWO NEW SPECIES OF TENERIFFIIDAE FROM JAPAN, WITH
NOTES ON THE GENERA *HETEROTENERIFFIA* AND
NEOTENERIFFIOLA (ACARINA: PROSTIGMATA)¹⁾²⁾**

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With 18 Text-figures

Mites of the family Teneriffiidae, presumed to be predators, are characterized in having reduced tarsus of the palpus. The Teneriffiidae are a very small group; so far as the writer is aware, only six genera and seven species are known from the world (THOR 1911, HIRST 1924, 1925, WOMERSLEY 1935, IRK 1939, TIBBETTS 1958). No representatives of this family have as yet been recorded from Japan. In the present paper descriptions are given of a new species of *Heteroteneriffia* HIRST, 1925, and a new species of *Neoteneriffiola* HIRST, 1924, both from this country; materials of the former were collected in intertidal zone near Shirahama, Wakayama Prefecture, whilst the latter was found on elm bark in Sapporo. Revised diagnoses and keys to species of the two genera are also included in this paper.

Genus *Heteroteneriffia* HIRST

Heteroteneriffia HIRST, 1925, p. 1278. Type: *Heteroteneriffia marina* HIRST.

Diagnosis. No podosomal shield; venter with 38-50 pairs of setae surrounding genital plates; anal cleft surrounded by 7-9 pairs of setae; genu of palpus without a thumb-like process; coxa of each leg widely separated from its partner, with 5-10 (mostly 6-8) setae; tarsi III and IV divided into two parts; claws of leg I strongly bipectinate, claws II-IV weakly bipectinate; 3 pairs of "genital discs" present in both sexes. Marine.

1) Contribution No. 698 from the Zoological Institute, Faculty of Science, Hokkaido University, Sapporo, Japan.

2) This paper is dedicated to Professor Sajiyo MAKINO, Zoological Institute, Hokkaido University, Sapporo, in honor of his sixtieth birthday, June 21, 1966.

Key to Species

1. Posterior pair of dorsal propodosomal setae approximately twice as long as anterior pair; trochanter of leg I with 2 tactile setae; tarsi II and IV each with 2 slender sensory setae; Malaya..... *marina* HIRST
- . Posterior pair of dorsal propodosomal setae about one and a half times as long as anterior pair; trochanter of leg I with 1 tactile seta; tarsi II and IV each with 3 slender sensory setae; Japan..... *tokiokai* n. sp.

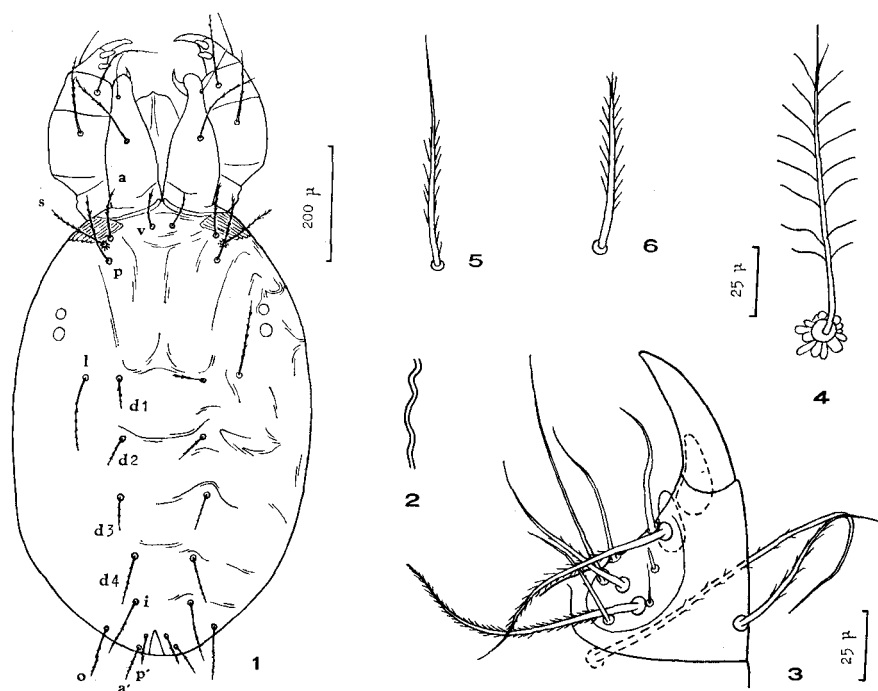
Heteroteneriffia tokiokai n. sp.

(Jap. Name: Iso-yubidani)

(Figs. 1-10)

Female. Body, including rostrum, ca. 1200 μ long and ca. 660 μ wide, with a slight constriction between podosoma and opisthosoma (this constriction not evident in mounted specimens); reddish in color. Dorsum of idiosoma with striations mostly undulate. Posterior pair of eyes larger than anterior pair. Dorsal sensilla (pseudostigmatic setae) 100 μ long, slender, with long barbs. Dorsal idiosomal setae conspicuously barbed; vertical setae 57 μ long; anterior dorsal propodosomals 81 μ ; posterior dorsal propodosomals 119 μ ; dorsosub-lateral hysterosomals 138 μ ; dorsocentral hysterosomals: 1st pair 51 μ , 2nd pair 58 μ , 3rd pair 67 μ , 4th pair 97 μ ; distance 1st pair to 2nd pair 114 μ , distance 2nd pair to 3rd pair 128 μ , distance 3rd pair to 4th pair 130 μ , distance 4th pair to inner clunals 87 μ ; inner clunals 126 μ ; outer clunals 90 μ . Postanal setae inserted at level slightly posterior to dorsal termination of anal cleft, 52 μ long, plumose; usually 9 pairs of plumose anal setae; a pair of anals adjacent to postanals 67 μ long. Venter of opisthosoma usually with 46-50 pairs of prominently plumose setae, exclusive of anals; each genital plate with 6 setae. Chelicera 220 μ long, with proximal seta 130 μ long and plumose; the distal seta much shorter. Palpus robust, with femur strongly swollen on outer margin; femoral seta 145 μ , plumose; genual seta 136 μ , plumose; tibia with plumose lateral seta and two blunt papillae; tarsus with 9 setae as figured. Hypostome with 2 pairs of blunt papillae ventrally; proximal pair of ventral hypostomal setae plumose, longer than distance to the distal pair. Coxae I-IV with prominently plumose setae. Coxa I with 7-8 tactile setae; trochanter I, 1 tactile; basifemur I, 5 tactiles; telofemur I, 5 tactiles; genu I, 13 tactiles and 1 slender sensory seta; tibia I, 16 tactiles, 1 slender sensory seta, 1 peg; tarsus I, 32 tactiles, 3 slender and 1 broad sensory setae. Each claw of leg I with 9-12 teeth on each side. Coxa II with 7-8 tactiles; trochanter II, 2 tactiles; basifemur II, 6 tactiles; telofemur II, 5 tactiles; genu II, 11-12 tactiles, 1 slender sensory seta; tibia II, 15-16 tactiles, 1 slender sensory seta; tarsus II, 32 tactiles, 3 slender and 1 broad

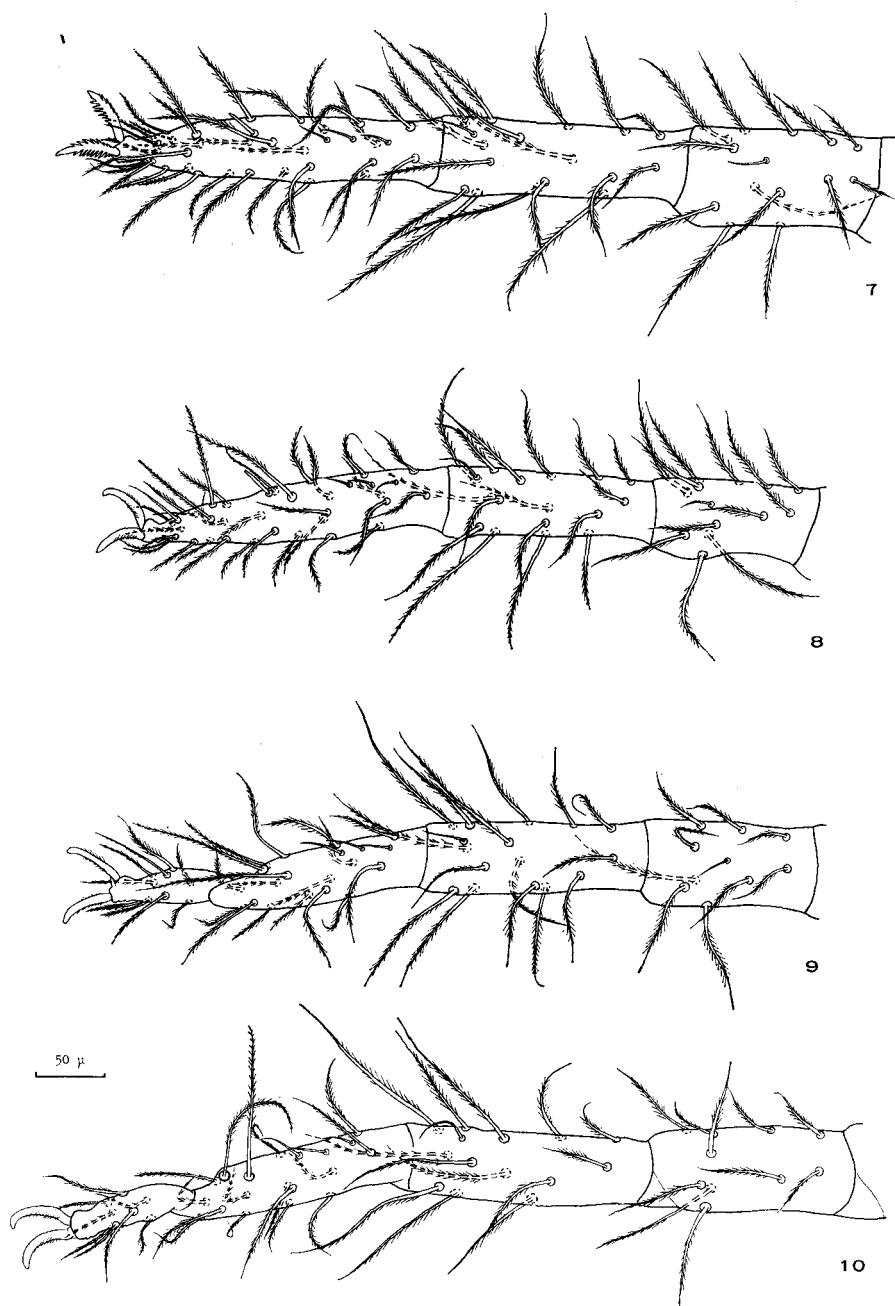
sensory setae. Coxa III with 8 tactiles; trochanter III, 3 tactiles; basifemur III, 4 (exceptionally 5) tactiles; telofemur III, 4 tactiles; genu III, 10 tactiles, 1 slender sensory seta; tibia III, 14-15 tactiles, 1 slender sensory seta; basitarsus III, 17 tactiles, 1 trichoboth (plumose), 3 slender sensory setae; distitarsus III, 8-9 tactiles. Coxa IV with 7-8 tactiles; trochanter IV, 3 tactiles; basifemur IV, 3-5 (mostly 3) tactiles; telofemur IV, 5 tactiles; genu IV, 10 (exceptionally



Figs. 1-6. *Heteroteneriffia tokiokai* n. sp. 1, dorsal view of body (♂) (a, anterior dorsal propodosomal seta; a', anal seta; d, dorsocentral hysterosomal seta; i, inner clunal seta; l, dorsosublateral hysterosomal seta; o, outer clunal seta; p, posterior dorsal propodosomal seta; p', postanal seta; s, dorsal sensillum; v, vertical seta). 2, striations on dorsum of idiosoma. 3, distal segments of palpus (♀). 4, dorsal sensillum (=pseudostigmatic seta). 5, 6, leg seta.

9) tactiles; tibia IV, 13 tactiles, 1 slender sensory seta; basitarsus IV, 15 tactiles, 1 trichoboth (plumose), 3 slender sensory setae; distitarsus IV, 8 tactiles.

Male. Nearly identical with female, except for genitalia. Seven to 9 pairs of anal setae. Thirty-eight to 50 pairs of setae surrounding genital plates. Coxa I with 6-8 tactile setae; tarsus I, 32-33 tactiles; coxa II, 7-9 tactiles; coxa III, 8(10) tactiles; genu III, 9-10 tactiles. Measurements: Body length ca. 940 μ , body width ca. 490 μ ; dorsal sensilla 99 μ ; verticals 58 μ ;



Figs. 7-10. *Heteroteneriffia tokiokai* n. sp. (♀). 7, distal segments of leg I. 8, distal segments of leg II. 9, distal segments of leg III. 10, distal segments of leg IV.

anterior dorsal propodosomals $83\ \mu$; posterior dorsal propodosomals $112\ \mu$; dorsosublateral hysterosomals $128\ \mu$; dorsocentral hysterosomals: 1st pair $49\ \mu$, 2nd pair $54\ \mu$, 3rd pair $59\ \mu$, 4th pair $87\ \mu$; distance 1st pair to 2nd pair $97\ \mu$, distance 2nd pair to 3rd pair $104\ \mu$, distance 3rd pair to 4th pair $102\ \mu$, distance 4th pair to inner clunals $74\ \mu$; inner clunals $113\ \mu$; outer clunals $86\ \mu$; postanals $51\ \mu$; posteriormost pair of anals $58\ \mu$; chelicera $220\ \mu$; proximal cheliceral seta $125\ \mu$; palpfemoral seta $130\ \mu$, palpgenual seta $135\ \mu$.

Types. Holotype: ♀, Hatake-zima near Shirahama (on rock in intertidal zone), Wakayama Pref., Honshu, July, 1957, T. TOKIOKA leg. Allotype: ♂, same data as holotype. Paratypes: 4 ♀♀ & 2 ♂♂, same data as holotype.

Remarks. *Heteroteneriffia tokiokai* is very similar to *H. marina* HIRST, 1925, but is distinguished from the latter by the relative lengths of the dorsal propodosomal setae, and by the chaetotaxy of the legs, as shown in the preceding key¹⁾. This new species is named in honor of Dr. Takasi TOKIOKA.

Genus *Neoteneriffiola* HIRST

Neoteneriffiola HIRST, 1924, p. 1078. Type: *Neoteneriffiola luxoriensis* HIRST.

Diagnosis. Podosomal shield present; venter with 6 pairs of setae surrounding genital plates; 1 pair of postanals and 2 pairs of anals; genu of palpus with a thumb-like process; coxae I and II not touching in medial line; coxal seta formula 4-3-4-3; tarsi III and IV divided into two parts; claws I and II large, broadly bipectinate; claws III and IV smaller, with a slender, clawlike empodium; 3 pairs of "genital discs" present in female, absent in male.

Key to Species

1. Dorsocentral hysterosomal setae noticeably longer than distances to bases of setae next behind; Egypt..... *luxoriensis* HIRST
- . Dorsocentral hysterosomal setae shorter than, or approximately as long as distances to bases of setae next behind..... 2
2. Posterior dorsal propodosomal setae less than twice as long as vertical setae; genera I-III each with a sensory seta; Texas, Utah, Virgin Islands..... *uta* TIBBETTS
- . Posterior dorsal propodosomal setae more than twice as long as vertical setae; genera I-IV without a sensory seta; Japan..... *japonica* n. sp.

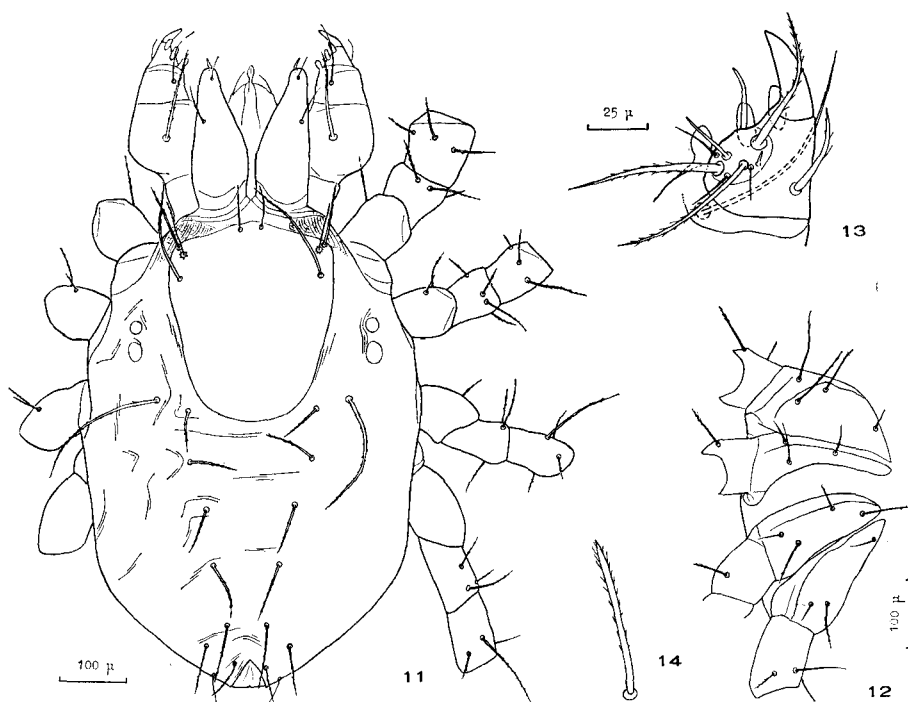
1) Specimens of *H. marina* of the British Museum (Nat. Hist.) have been examined by the writer through the courtesy of Dr. G. Owen EVANS.

Neoteneriffiola japonica n. sp.

(Jap. Name: Usuge-yubidani)

(Figs. 11-18)

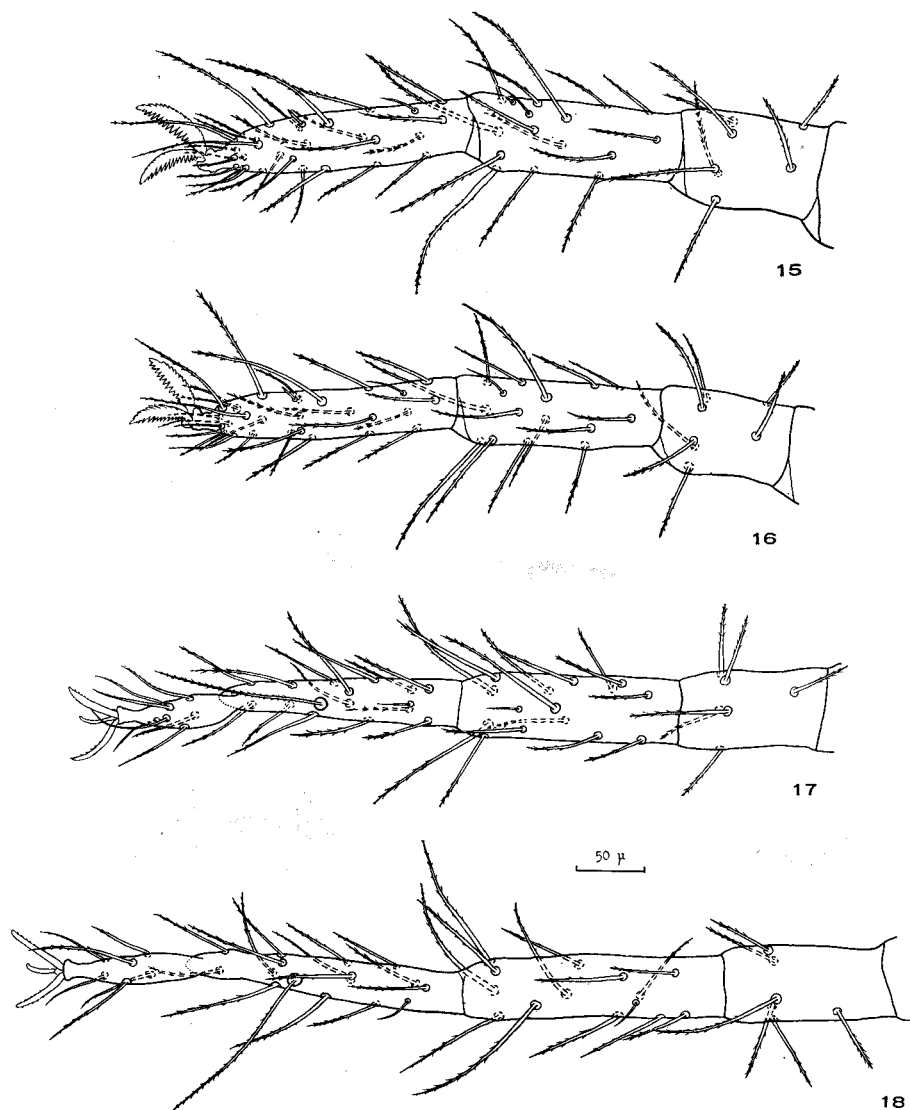
Male. Body, including rostrum, ca. 880 μ long and ca. 460 μ wide; orange in color, with light brownish blotches. Dorsum of idiosoma, except podosomal shield, with striations not undulate. Anterior pair of eyes circular, the posterior pair larger, elongate oval. Dorsal sensilla 102 μ long, very slender, obscurely plumose. Dorsal idiosomal setae moderately plumose except vertical setae which are obscurely plumose; vertical setae 57 μ long; anterior



Figs. 11-14. *Neoteneriffiola japonica* n. sp. (♂). 11, dorsal view of body. 12, coxae I to IV. 13, distal segments of palpus. 14, a leg seta.

dorsal propodosomals 96 μ ; posterior dorsal propodosomals 148 μ ; dorsosub-lateral hysterosomals 178 μ ; dorsocentral hysterosomals: 1st pair 61 μ , 2nd pair 77 μ , 3rd pair 77 μ , 4th pair 90 μ ; distance 1st pair to 2nd pair 74 μ , distance 2nd pair to 3rd pair 77 μ , distance 3rd pair to 4th pair 81 μ , distance 4th pair to inner clunals 90 μ ; inner clunals 87 μ ; outer clunals 72 μ . Postanal setae inserted slightly caudad of dorsal termination of anal cleft, 52 μ long, moderately plumose; 2 pairs of weakly plumose anals, dorsal pair 44 μ . Six

pairs of nude setae surrounding genital plates; each genital plate with 6 setae. Chelicera 204 μ long, with proximal seta 54 μ long and plumose; the distal seta shorter. Palpus robust, with femur strongly swollen on outer margin; femoral seta 126 μ , plumose; genu with process as figured, genual seta 81 μ , nude; tibia with ventral seta broad and plumose; two blunt tibial papillae present; tarsus with 9 setae as figured. Hypostome with 2 pairs of apparently nude, ventral setae; the proximal pair longer than distal pair,



Figs. 15-18. *Neoteneriffiola japonica* n. sp. (♂). 15, distal segments of leg I. 16, distal segments of leg II. 17, distal segments of leg III. 18, distal segments of leg IV.

approximately as long as distance to the distal; two pairs of blunt rostral papillae. Each claw of legs I and II with 11-16 teeth on each side; coxae I-IV with obscurely plumose setae, number of coxal setae typical for genus. Trochanter I with 1 tactile seta; basifemur I, 5 tactiles; telofemur I, 5 tactiles; genu I, 7 tactiles; tibia I, 14 tactiles, 1 slender sensory seta, 1 peg; tarsus I, 26-27 tactiles, 1 broad and 1 slender sensory setae. Trochanter II with 3 tactiles; basifemur II, 6 tactiles; telofemur II, 5 tactiles; genu II, 7 tactiles; tibia II, 13-14 tactiles, 1 slender sensory seta; tarsus II, 27-28 tactiles, 1 broad and 1 slender sensory setae. Trochanter III with 2 tactiles; basifemur III, 4 tactiles; telofemur III, 5 tactiles; genu III, 6 tactiles; tibia III, 13-14 tactiles, 1 slender sensory seta; basitarsus III, 14-15 tactiles, 1 trichoboth (plumose), 1 slender sensory seta; distitarsus III, 7 tactiles. Trochanter IV with 2 tactiles; basifemur IV, 3-5 tactiles; telofemur IV, 5 tactiles; genu IV, 6 tactiles; tibia IV, 12-14 tactiles, 1 slender sensory seta; basitarsus IV, 12-14 tactiles, 1 trichoboth (plumose), 1 slender sensory seta; distitarsus IV, 6-7 tactiles.

Female. Not known.

Types. Holotype: ♂, Sapporo, Hokkaido, 13-V-1958 (on elm bark), S. EHARA leg. Paratype: 1 ♂, same data as holotype.

Remarks. *Neoteneriffiola japonica* closely resembles *N. uta* TIBBETTS, 1958, of which a fine redescription is given by ELLER and STRANDTMANN (1963). These two species are different from each other in the relative lengths of the vertical setae and posterior dorsal propodosomal setae, and in the proportion of the lengths of the dorsocentral hysterosomal setae to the distances between them. In *N. uta*, first to third pairs of the dorsocentral hysterosomal setae are much shorter than the distances to the bases of the setae next behind, while they are, in *N. japonica*, slightly shorter than, or approximately as long as these distances. Further, the leg chaetotaxy is distinctive between the two species. Of the leg segments of *N. uta*, the following segments are different from those of *N. japonica* in number of setae: genu I, 8 tactiles, 1 slender sensory seta; tibia I, 12-13 (12)¹⁾ tactiles, 1 slender sensory seta, 1 peg; tarsus I, 27 tactiles, 1 broad and 2 slender sensory setae; genu II, 8 tactiles, 1 slender sensory seta; tibia II, 12 tactiles, 1 slender sensory seta; tarsus II, 26 (27) tactiles, 1 broad and 2 slender sensory setae; telofemur III, 4 tactiles; genu III, 7 tactiles, 1 slender sensory seta; tibia III, 12 tactiles, 1 slender sensory seta; basitarsus III, 14 tactiles, 1 trichoboth (plumose), 1 slender sensory seta; distitarsus III, 8 tactiles; basitarsus IV, 4 tactiles; telofemur IV, 4 tactiles; genu IV, 7 tactiles; tibia IV, 11 (12) tactiles, 1 slender

1) The numbers of leg setae of *N. uta* have been counted in one female and one male specimens from Texas, submitted by Dr. R. W. STRANDTMANN. When the numbers are different between these two specimens, the number in the female is given in parentheses.

sensory seta; basitarsus IV, 15 tactiles, 1 trichoboth (plumose), 2 slender sensory setae; distitarsus IV, 8 tactiles.

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